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ABSTRACT

A study used semiotics to examine the graphic elements within corporate trademarks. The trademarks from 247 "Fortune" 500 corporations were placed into 86 different categories of graphic elements intended to connote 14 different qualities. Subjects, 40 college students and 61 business professionals, evaluated 9 sets of 12 trademarks in terms of their intended meanings. Results indicated that in seven of the nine cases, the trademarks did connote their intended meanings. Findings suggest support for the premise that there are semantic meanings to visual phonemes. Findings also bolster the idea that the image is a valid design for communication studies. (Contains 39 references and 1 table of data.) (RS)

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# An Examination of the Meanings of Trademarks and Their Graphic Elements

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## ABSTRACT

Graphic elements within trademarks appear to communicate specific meanings. Trademarks from Fortune 500 corporations that were examined for this study contain 86 different categories of graphic elements and are intended to connote 14 different qualities. Subjects evaluated nine sets of 12 trademarks in terms of their intended meanings. In seven of the nine cases the trademarks did connote their intended meanings.

# An Examination of the Meanings of Trademarks and Their Graphic Elements

The role of visual communication is nascent. Its counterpart, verbal communication, is already well developed, and it has its fiercely verbocentric supporters. The appearance of visual communication being the less mature of these two forms of communication does not negate the value of its study.

The premise of this research is that Peirce's semiotics can be used to examine the signs of both verbal and visual communication. This provides a basis for borrowing tools of verbal communication to examine visual images. It also becomes the theoretical foundation for applied experimentation.

## Semiotics

According to Charles Peirce, semiosis is "an action, or influence, which is, or involves, an operation of three subjects, such as a sign, its object, and its interpretant." (C.P. 5.484). This addresses philosophy as much as it does communication: it deals with ontology since it assumes the existence of an object; and it deals with epistemology since it assumes the object's existence can be known; but for the purposes of this paper, only the issue of communication will be examined—specifically, how one may know an object through its sign. Peirce uses the term "object" in an almost Platonic sense rather than to simply denote a particular item.

Peirce says a sign is "something which stands to somebody for something in some respect or capacity" (C.P. 2.228). Peirce describes three types of signs (C.P. 1:180): the icon that has the appearance of its object, such as a photograph of a spouse; the symbol which is arbitrarily assigned to its object, such as most words; and the index that indicates an object, such as a footprint in the snow indicates the path of an animal. These signs may be visual or verbal. For example, the words "my car" denote a particular vehicle, but so could a photograph of the same object—a verbal or a visual sign can similarly denote the same object.

Whereas many contemporary semioticians, such as Barthes (1988), claim not to be concerned in this sign function, the central purpose of this present research is to explore the relationships between specific signs and meanings. The meaning of visual, as with verbal, signs need not be profound. In terms of Jakobson's work, a graphic symbol, such as a trademark, may be seen as a form

of phatic communication—the presence of a trademark is like a company's "hello," that maintains and reaffirms relationships, and is crucial in holding that relationship together. And, since such graphic symbols communicate more than just the denotation of a particular company, they are like Barthe's connotation that describe the interaction that occurs when the signs meets the feelings or emotions of the users and the values of their culture (Fiske 1990, 14, 57, and 86). Berger notes that all of these marketing symbols attest to the arbitrary relation that exists between signifier (mark) and signified (corporation) (1984, 101). David Carter best sums this up with his statement, "A good symbol accurately portrays the personality and function of the company.

The Dominant Word

Although semioticians claim that words and visual images may both be used as signs in the process of communication, many in the academy hold a bias against images and in favor of words: Alan Bloom (1987) blames the atrophy of American thought on the televised picture eclipsing the printed word; Neil Postman (1984) states that the video image is intrinsically evil; and Muggeridge denounces television as utterly irredeemable.

Ellul (1985), and Ewen (1988) are examples of two more communication scholars who have joined in this denunciation of visual images. Ellul believes that the word is a uniquely human sound that differentiates people from the rest of creation (Ellul, 1985, p. 14). Not only does Ellul believe that words are distinctly human signs, but that words alone can communicate truth.

Like Ellul, Ewen claims that a dishonesty of expression has become the visual lingua franca. For both Ewen and Ellul, the essence of their grievance (in semiotic terms) centers on their belief that the modern image is a sign devoid of meaning—utterly separated from its object. Others, such as Nimmo and Combs (1990), Lakoff and Johnson (1980), and Carey (1989), outright deny the existence of an objective reality. The interesting turn is that they write as though their views were real and objective.

The Substance of the Verbo-Centric Arguments

The essence of the verbo-centric scholar's views may be reduced to three claims. The first is that visual images have a detrimental effect on society. The major shortcoming of this view is the failure to establish any causal relationship

between the increased presence of visual images in society and any increase in social ills. Perhaps both variables are dependent upon a third variable, such as the possible loss of an end purpose for society, as claimed by McIntyre (1984).

In the second claim, made by Ellul, images are purported to be unable to communicate truth, but again the scholars fail to provide measurable evidence. Certainly the visual image is a different type of sign from the word and may well be better suited to connoting emotions than denoting logical reasoning, but this in itself fails to make it unworthy as a subject of communication research. Perhaps an image may more truthfully communicate an emotion than words could; and perhaps these differences between words and images make all the more reason that visual images need to be studied. Sontag (1977) and Knorr-Cetina (1981) address this in their discussions of how the camera establishes its own discourse.

The final claim is the verbo-centric scholars' belief about human language. Ellul, like Chomsky, claims that language is unique and distinct to humans. But there is research, such as Sebeok's zoosemiotics, about animals' use of sound to communication. On the other hand, there is no evidence of any creature other than humans making visual icons—images that resemble in appearance specific objects. Perhaps it is in visual rather than verbal communication where the destination of human communication lies.

It is suggested here, then, that the image is a valid sign for communication studies, although it may operate in a dimension different from that for the word. One example of this difference is suggested in the research results of Roger Sperry. He found that there appear to be two modes of thinking, verbal and nonverbal, represented separately in the left and right hemispheres of the human brain. Sperry states that educational systems, as well as science in general, tend to neglect the nonverbal form of intellect (Edwards, 1979, p. 29).

History supports this belief. Art historian and surgeon, Shlain, like Sperry, believes in a visually-oriented right side of the brain. He notes that Newton's discoveries were expressed in equations (apparently using the left brain), whereas DiVinci's were expressed in drawings (apparently using the right brain) (Shlain, 1991, p. 74). So, not only is the visual image an alternative sign to the word, but apparently people—such as artists—have a propensity to use a different part of the brain to think in visual rather than verbal terms.

A Rationale for Using Linguistic Techniques to Examine Images

If the visual image is indeed a valid sign, then some of the research techniques used to examine verbal signs—such as in linguistics—may be used to examine visual communication as well.

Fromkin and Rodman state that when people learn a language they learn the elements and rules that constitute the grammar of language. In one sense, the grammar includes everything speakers know about their language—the sound system, called phonology, the system of meanings, called semantics, and the rules of sentence formation, called syntax (Fromkin & Rodman, 1978, p. 9, 11).

Pike states that the presence of such stable grammatical characteristics have to be taken as a presupposition of linguistic study. This is a fundamental assumption of linguistics: in a speech community some speech-utterances are consistent as to form and meaning (Pike, 1967, p. 621).

The theoretical basis of this present research is that each of these linguistic elements of grammar could have a counterpart in visual communication: visual images are based on a system of visual elements similar to a phonology; visual images have a system of meanings similar to semantics; and there are rules that govern the formation of these images similar to a syntax. As with Pike's linguistic presuppositions, these visual characteristics may be relatively stable, with some images being alike as to form and meaning.

The goal, then, of this present research is to begin to develop a descriptive visual grammar. Fromkin and Rodman (1978, p. 9) state that a descriptive grammar does not tell how one should speak; instead it describes people's basic linguistic knowledge, it explains how it is possible for people to speak and understand, and it explains what it is people know about the sounds, words, phrases, and sentences of their language. Therefore, the purpose of developing a descriptive visual grammar is to examine what meanings are actually communicated through different patterns of graphic elements.

An important issue of visual grammar is how people come to understand the meaning of visual images. Osgood (1957, 1975) extensively sought universal meanings for graphic elements such as color as well as for words. The generality of certain relationships was quite striking: for example, good gods, places, social positions, etc., were almost always up and light (white), whereas bad things were down and dark (black) (Osgood, Suci, & Tannenbaum, 1957, p. 23). Although the

idea of universals is not currently in vogue in the academy, the examination of their possible presence deserves at least consideration.

Another source of meaning is convention, brought about when arbitrary signs are regularly used with certain meanings. In verbal communication, learning a spoken language includes learning the "agreed-upon" meaning of certain strings of sounds and learning how to combine these meaningful units into larger units which also convey meaning. Individuals are not free to change the meanings of these words at will, for if they did they would be unable to communicate with anyone (Fromkin & Rodman, 1978, p. 163). People are seldom cognizant of this process. Any normal child, born anywhere in the world, of any racial, geographical, social, or economic heritage, is capable of learning any language to which he or she is exposed (Fromkin & Rodman, 1978, p. 331). Generally without realizing it, children learn all the major rules of their native language before ever entering formal education. For example, in jungle settings indigenous people learn their own, often complex, language which seldom or never has been written or translated.

The same thing may happen with the subconscious learning of a visual grammar. Just as children, without formal training, learn much of their native language by observing the usage of sound patterns in their community, so graphic artists may also—at a deeper, intuitive level—learn the conventional grammar of visual communication. This process may take place in the right hemisphere of that brain the does not lend itself to verbal explanation. Examining the neuroscientific aspect of visual communication is beyond the scope of this research, but using these linguistic principles to explore visual grammar is certainly within its range.

## The Precedence for a Visual Grammar

Linguists more than other scholars seem kindly disposed toward the idea of a visual grammar. Perhaps this is due to the fact that linguists can better envision the application of their skills to related fields; or perhaps it is due to the fact that the history of visual and verbal communications has not been as distinct or as mutually exclusive as one might expect.

In historical terms, Eco (1984, p. 33) notes that more than 1500 years ago Augustine brought together the theory of sign and the theory of language. The origin of a visual grammar is pushed much further back by Shlain (1991, p. 29) to

the beginning of written history when he states that the alphabet was civilization's first abstract art form. The linguists, Fromkin and Rodman, elaborated on this process of a visual (written) language:

Cave drawings such as those found in the Altamira cave in northern Spain, drawn by humans living over 20,000 years ago, can be "read" today. Later drawings are clearly "picture writing," or pictograms. Unlike modern writing systems, each picture or pictogram is a direct image of the object it represents. There is a nonarbitrary relationship between the form and meaning of the symbol.... In the course of time the pictogram's meaning was extended, in that the picture represented not only the original object but attributes of that object, of concepts associated with it. Pictograms thus began to represent ideas rather than objects, and such pictograms are called ideograms ("idea pictures" or "idea writing"). Later,... the form and the meaning of a pictogram were fixed in an arbitrary relationship. The pictograms were now linguistic symbols;... (Fromkin & Rodman, 1978, p. 357-59).

At what point does one say that writing departed from visual communication: with the pictogram, with the ideogram or with the later arbitrary alphabet? Surely this departure was a continual process rather than a single point of separation. As one traces this development of recorded language, it appears that the conventions of these images were comprised by an ancient visual grammar.

In sociological terms, Pike states that language may no longer be viewed as something entirely distinct from other cultural systems but must rather be viewed as part of the whole and functionally related to it (Pike, 1967, p. 34). Pike says that society, like language, is something that has a grammar. There is in society an internal organization below the conscious level. Culture, like language, has pattern (Pike, 1967, p. 665). Logically, then, it is reasonable to discuss a grammar for visual images as part of the cultural whole.

While there are strong parallels between the grammars of visual and verbal communication, they are strongly divergent at other points. Extending this difference between words and images, Shlain (1991, p. 17) notes that visual artists create a language of symbols for things for which there are not yet words. Whereas Chomsky holds that language is a uniquely human characteristic, Shlain believes the use of images is at the core of distinctly human way of thinking. Shlain believes that because the erosion of images by words occurs at

such an early age, people forget that in order to learn something radically new, they need first to imagine it—"imagine" literally means to "make an image" (Shlain, 1991, p. 18). Therefore, for Shlain, the visual process precedes, and may even surpass, the verbal process in human development.

In summary, the word and the visual image are both signs used in human communication. Although there are scholars who express strong biases toward verbal communication, their comments fail to negate the value of studying visual communication. It is posited here that the tools of verbal communication may be used in the study of visual images. Today, images in marketing communication appear to offer the richest examples for this study of visual signs.

Applying Visual Grammar to One Graphic Medium—Corporate Trademarks

Most large corporations each have a registered symbol to represent itself. Russel, Lane, Nicholson and Nelson (1990, 552) correctly call these symbols "trade names" and "house marks" since they represent parent corporations rather than particular products. The term "trademark," though, is used in this article since this is what these symbols are registered as with the U. S. Department of Commerce.

For several reasons, these corporate trademarks make a good visual genre to begin to apply the concept of visual grammar: 1) parsimony of design and purpose—the trademark is a concise graphic design that is meant to visually identify a particular company; 2) stability—the cost in terms of time and money to design, resister, and use a corporate trademark makes it is less likely to be subject to the whims of fashion; 3) intent—companies invest substantial amounts in the creation and research of corporate trademarks to ensure they successfully communicate their intended meanings; 4) breadth—if all types of corporations are examined, there should be no bias in terms of limited types of products represented; and 5) Abstraction—the meaning of trademarks must be communicated through their abstract, graphic presentation.

To examine corporate trademarks in linguistic terms, one must begin with the basic graphic components of trademarks—the visual equivalence of phonemes. Once these elements are known, their patterns (syntax) and their meanings (semantics) can be examined.

The graphic equivalents of phonemes were examined in a previous, unpublished study (available form the author). A linguistic perspective was

used to analyze the graphic content of corporate trademarks and to examine patterns of use of these graphic elements. Eighty-six different graphic elements were examined in each of 247 corporate trademarks for "Fortune 500" companies. The use of these elements was found to be significantly different from graphic elements described by Osgood (1975), Baskette (1986), and Ogilvy (1985).

With an examination of graphic phonemes completed, the meanings carried through these visual elements (semantics) were examined next. In an unpublished study (available from the author), corporate trademarks were examined for their meanings. A survey of marketing communication executives for Fortune 500 companies was used to find what qualities were intended to be communicated from their trademarks. The results produced a list of 14 intended qualities.

Intended meanings do not necessarily equate with successfully communicated meanings. To examine this, statistical comparisons first are made of the frequencies of all 86 graphic elements by the frequencies of all 14 intended qualities. This is done in the belief that there are significant relationships between certain meanings and graphic elements.

From this preliminary examination, twenty-eight cross tabulations are found to have significant results ($p < 0.05$). Although statistically significant, some of these meanings and graphic elements were still infrequently observed. These results were therefore examined further to ensure there were at least three trademarks that could be used as examples in each of the four possible combinations: with and without the specific graphic element, and with and without the intended meaning. There were only nine sets of results that met this criterion. These sets became the bases for this study's hypotheses.

The assumption from each of these nine relationships is that the graphic element communicates a specific meaning. To test this assumption, subjects are asked to evaluate pairs of trademarks in terms of these intended meanings—one trademark contains the graphic element that is assumed to communicate one meaning, the other does not. The general hypothesis is that there will be interactions such that trademarks containing these graphic elements (factor 1) will produce higher evaluation scores in terms of their intended meanings (factor 2). The specific results of the findings described above become the bases for the following nine hypotheses:

H1—Trademarks with round or angled type better connote "integrity" than without squared type.

H2—Trademarks without frames better connote "high tech" than without frames.

H3—Trademarks with graphic designs better connote "innovation" than without.

H4—Trademarks with asymmetrical type better connote "high tech" than with symmetrical type.

H5—Trademarks with squared type better connote "leadership" than with round or angled type.

H6—Trademarks with letter-shaped designs better connote "moderness" than with round designs.

H7—Trademarks with connected type better connote "quality" than with normally spaced type.

H8—Trademarks with type in an irregular shaped area better connote "uniqueness" than with uniform type.

H9—Trademarks with slanted type (Italic or oblique) better communicate "tradition" than with vertical type.

## Method

### Respondents

A sample of convenience ($n$ = 101) was recruited to participate in the study. Forty of the subjects were college students and 61 were business professionals. Sixty-two were female, 38 male. Fifty-four were under 25, 17 were between 25 and 34, 21 were between 35 and 49, and eight were over 49. Four had not

attended college, 46 attended some college, 22 had college degrees, and 28 had graduate degrees. Eighty-six were white, five black, and two oriental.

Procedures

Subjects evaluated these trademarks in terms of how well the trademarks connoted their intended qualities, on a scale of one to five. The statistical technique was analysis of variance. The independent variable was the graphic element, comparing two levels: trademarks that contain the designated element versus those that don't. The trademarks were also segmented by another independent variable: whether or not each trademark was meant to communicate the quality associated with the graphic element being examined. This resulted in a 2X2 design. Three trademarks were randomly selected for use in each of the four cells of this design. This meant the respondents would evaluate a total of 12 trademarks per ANOVA.

Instrument Design

The questionnaire comprised a total of 105 trademarks. Copies of the original trademarks from the Department of Commerce were scanned into computer files. Flaws in the original copies were corrected on the computer.

Subjects were asked to evaluate each trademark within its group in terms of one specific quality (such as tradition, leadership, and uniqueness) on a five-step scale: ranging from "It does not communicate this quality at all" to "It absolutely communicates this quality." Subjects recorded their responses on NCS forms.

## Results

Of the nine ANOVA tests, five had significant main effects for the graphic variable, and two more had significant results in their interactions. Only two failed to produce any significant results (Table 1).

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Place Table 1 about here.

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H1 (supported)—Trademarks with round or angled type better connote "integrity" than without squared type.

There was a significant difference between trademarks with and without squared strokes when evaluated in terms of "integrity" ($F_{(1,00)} = 37.01$). Type with squared strokes had a higher mean score ($\overline{X} = 3.14$) when evaluated in terms of integrity than did type with round or angled strokes ($\overline{X} = 2.57$).

There was also a significant interaction ($F_{(1,100)} = 25.69$). Squared-stocked type that was intended to communicate integrity had a higher mean score ($\overline{X} = 2.90$) when evaluated for that quality than did trademarks that were not meant to communicate that quality ($\overline{X} = 2.24$). This suggests that there was some other factor helping this graphic element communicate its intended meaning.

H2 (supported with interaction)—Trademarks without frames better connote "high tech" than without frames.

There was no significant difference between trademarks with and without frames when evaluated in terms of being "high tech" ($F_{(1,100)} = 0.48$). There was, though, a significant interaction ($F_{(1,100)} = 22.90$). Trademarks without frames, when meant to communicate "high tech" had a higher mean score ($\overline{X} = 3.04$) when evaluated for that quality than did trademarks with frames that were not meant to communicate that quality ($\overline{X} = 2.66$). This suggests that there was some other factor helping this graphic element communicate its intended meaning.

H3 (not supported)—Trademarks with graphic designs better connote "innovation" than without.

There was no significant difference between trademarks with and without graphic designs when evaluated in terms of "innovation" ($F_{(1,00)} = 1.88$), nor was there any interaction ($F_{(1,00)} = 2.21$).

H4 (not supported)—Trademarks with asymmetrical type better connote "innovation" than with symmetrical type.

There was no significant difference between trademarks with and without symmetrical designs when evaluated in terms of "innovation" ($F_{(1,00)} = 0.02$), nor was there any interaction ($F_{(1,00)} = 0.01$).

H5 (supported)—Trademarks with squared type better connote "leadership" than with round or angled type.

There was a significant difference between trademarks with and without squared strokes when evaluated in terms of "innovation" ($F_{(1,00)} = 7.89$). Type with squared strokes had a higher mean score ($\overline{X} = 3.14$) when evaluated in terms of leadership than did type with round or angled strokes ($\overline{X} = 2.86$).

There was no significant interaction ($F_{(1,00)} = 0.44$).

H6 (supported with interaction)—Trademarks with letter-shaped designs better connote "moderness" than with round designs

There was no significant difference between trademarks with round or letter-shaped designs when evaluated in terms of "moderness" ($F_{(1,00)} = 0.01$). There was, though, a significant interaction ($F_{(1,100)} = 19.60$). Trademarks with a round design, when meant to communicate "moderness" had a higher mean score ($\overline{X} = 3.34$) when evaluated for that quality than did trademarks with letter-shaped designs that were not meant to communicate that quality ($\overline{X} = 2.91$). This suggests that there was some other factor helping this graphic element communicate its intended meaning.

H7 (supported)—Trademarks with connected type better connote "quality" than with normally spaced type.

There was a significant difference between trademarks with and without squared normal letter spacing when evaluated in terms of "quality" ($F_{(1,00)} = 22.54$). Type that was connected had a higher mean score ($\overline{X} = 3.12$) when evaluated in terms of quality than did normally spaced type ($\overline{X} = 2.85$).

There was also a significant interaction ($F_{(1,100)} = 20.27$). Trademarks with connected type, when meant to communicate "quality" had a higher mean score ($\overline{X} = 3.31$) when evaluated for that quality than did trademarks with frames that were not meant to communicate that quality ($\overline{X} = 2.93$). This suggests that there was some other factor helping this graphic element communicate its intended meaning.

H8 (supported)—Trademarks with type in an irregular shaped area better connote "uniqueness" than with uniform type.

There was a significant difference between trademarks with type that was or was not in a uniform area (such as a rectangle) when evaluated in terms of "uniqueness" ($F_{(1,00)} = 11.54$). Type in an area that varied had a higher mean

score ($\overline{X}$ = 3.01) when evaluated in terms of leadership than did type that was uniform ($\overline{X}$ = 2.83).

There was also a significant interaction ($F_{(1,100)}$ = 9.25). Trademarks with type placement that varied, when meant to communicate "uniqueness" had a higher mean score ($\overline{X}$ = 3.07) when evaluated for that quality than did trademarks with uniform type placement that were not meant to communicate that quality ($\overline{X}$ = 2.96). This suggests that there was some other factor helping this graphic element communicate its intended meaning.

H9 (supported) —Trademarks with slanted type (Italic or oblique) better communicate "tradition" than with vertical type.

There was a significant difference between trademarks with slanted (Italic or oblique) type and with vertical type when evaluated in terms of "tradition" ($F_{(1,00)}$ = 10.18). Type with slanted type had a higher mean score ($\overline{X}$ = 2.90) when evaluated in terms of tradition than did vertical type ($\overline{X}$ = 2.70).

There was, though, a significant interaction ($F_{(1,100)}$ = 7.44). Trademarks with Italic or oblique type, when meant to communicate "tradition" had a higher mean score ($\overline{X}$ = 3.01) when evaluated for that quality than did trademarks with vertical that were not meant to communicate that quality ($\overline{X}$ = 2.71). This suggests that there was some other factor helping this graphic element communicate its intended meaning.

## Discussion

The fact that significant results were found in seven of nine ANOVAs suggests that trademarks and their graphic elements do connote specific qualities. Stated in terms of the introduction to this study, these results support the premise that there are semantic meanings to visual phonemes.

### Specific Applications

Graphic artists can benefit from applying these results. The use of these findings would not be the imposition of what an outside authority—such as an art academy—feels that visual images ought to mean, but rather the actual results of what subjects actually understand these graphic elements in fact communicate.

For example, a graphic artist may want to consider using type with squared ends to connote leadership, round ends to connote integrity, and italic type to

connote tradition. The artist may also want to connect some or all the letters to connote quality, and vary the placement of type to connote uniqueness. He or she may want to create a design that is round for a modern meaning, and eliminate any graphic frame around the trademark to indicate a high tech quality.

One of the benefits to the graphic artist of applying such research is the ability to support with empirical evidence his or her design selections. It should also simplify the creative process. Following such suggestions are intended to be no more restrictive for the graphic artist than using correct spelling is for great writers.

Suggestion for Further Research

These findings give support to the formation of a predictive hypothesis. In a controlled situation, subjects would be shown trademarks that were identical except for specific graphic elements reported in this article, which would be varied as independent variables. The hypothesis would predict that these subjects will more positively evaluate trademarks in terms of the meanings discussed here. This would eliminate the artifact of trademark recognition that may have contaminated the results of this article. The positive results of such predictions would establish a theoretical basis for a grammar or graphic elements.

Table 1

| Graphic Element | Quality meant to be communicated | Scores | |
|---|---|---|---|
| | | With element | Without element |
| round/angled type | "integrity" | 3.14** | 2.57** |
| frame | "high tech" | 2.71 | 2.75 |
| design | "innovation" | 2.81 | 2.80 |
| symmetrical type | "innovation" | 2.72 | 2.75 |
| squared type ends | "leadership" | 3.14** | 2.86** |
| letter-shaped design | "modern" | 2.99 | 2.91 |
| connected type | "quality" | 3.12** | 2.85** |
| varied type area | "unique" | 3.01** | 2.83** |
| Italic/oblique type | "tradition" | 2.90** | 2.70** |

* significant at alpha 0.05 level

** significant at alpha 0.01 level

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